



Mr Jack Pagotto

Head/Emergency Management, Surveillance Intelligence and Interdiction, Critical Infrastructure Protection Science & Technology, Defence Research & Development Canada – Center for Security Sciences

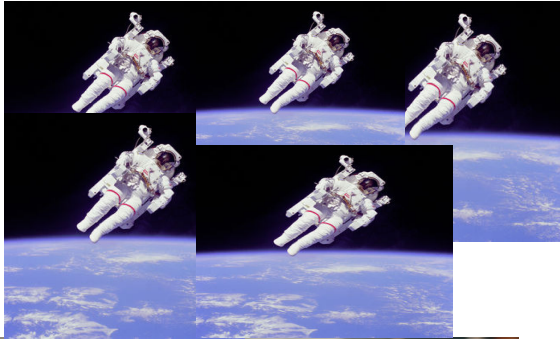
Major Daniel Noebert, Canadian Forces

RAD DIM Desk Officer/Project Director
Chemical, Biological, Radiological & Nuclear Defence Directorate

Tactical Situation Assessment Technologies (TSAT)

Emily W. Medina, Project Manager
Space and Naval Warfare Systems Center Pacific
17 May 2010

Our Community of Users: Tactical Warriors Using Gloves to Communicate in Extreme Environments



This war fighter has been given two pens as tools to overcome MOPP-4 gloves which hinder his ability to function on a keyboard. The CBD personnel on the left have removed their hands from their gloves in order to manage sensor controls.





Start with a Fundamental Tactical Activity: Text Chat: Functions Supported by Tactical Text Communications

▼ Combat Functions Supported as of Sept 28, 2007 (Bahrain):

C4I setup,
GCCS setup and troubleshooting,
C2, Intel,
OPS, AIROPS, Air Defense, Air Warfare,
Radio coordination,
Comms coordination,
Tactical Medevac coordination,
CND coordination,
TLAM coordination,
CAOC coordination,
SIGINT coordination,
TOC coordination,
MIO coordination,
USW coordination,
UAV coordination,
Airdrop coordination

- Supports dynamic real-time targeting
- Provides immediate COP (common operational picture) change and context updates
- Supports Cross-Domain operations, without the COP (with new language translation capability)
- **Supports edge users (on low/intermittent b/w-high latency networks), large number of users, and highly distributed users**

OUR OBJECTIVE:

Improve proficient tactical communications via multi-media chat and novel technologies of inscription could cut SA coordination time in half or *ENABLE where unable before.*

▼ Completely dependent upon keystroke and voice input

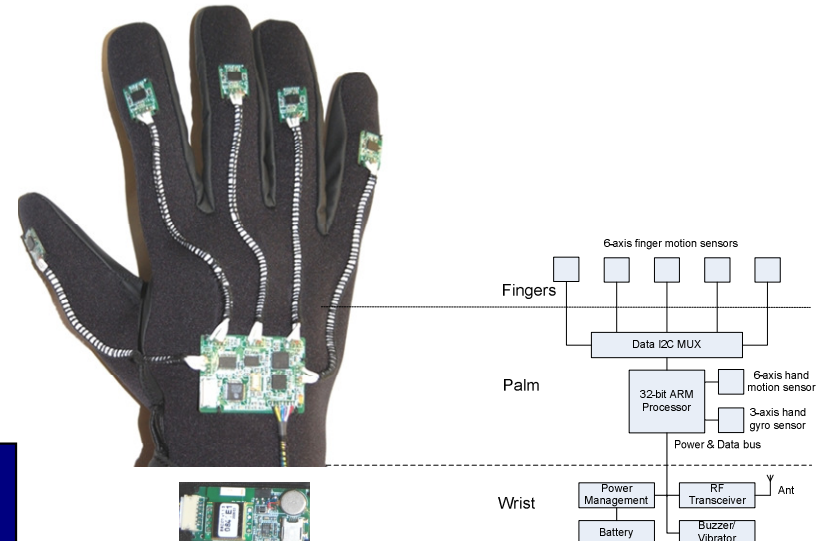
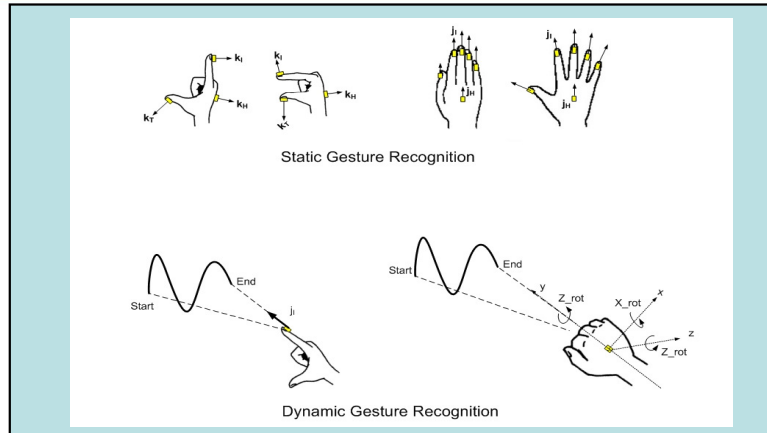
Technical Approach 2006-2009

▼ 4 Major Research Areas and Products :

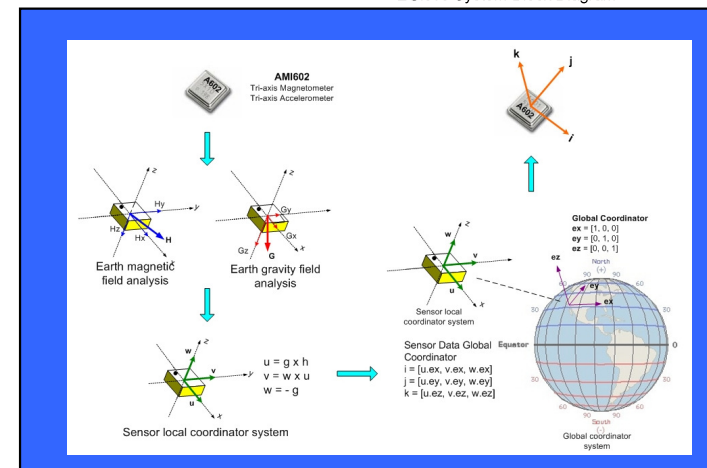
- **Computational Linguistic Analysis-**
 - first analysis conducted on tactical chat for compilation of most common naval tactical terms (1 conference panel session, 5 publications)
- **Visual and Iconic Language Research**
 - first attempt to develop military situation assessment gestures and icons (2 successful VAIL conferences, 12 publications)
- **Novel Technology of Inscription: the data or eGlove**
 - first wireless gesture-capable glove (2 patent pendings; 4 invention disclosures)
- **VisChat Software Development (Integration and Testbed)**
 - first multi-media Chatroom; novel testbed (1 invention disclosure; 2 conference presentations, 1 publication)

Technical Approach

What Makes This Hard: Gesture Determination, Visual Representation, and Being First



EGlove System Block Diagram



MIL STD 2525b

Units: Unit antenna indicator, Unit battery indicator, Unit power indicator, Unit status indicator, Unit test indicator, Unit failure indicator, Unit repair indicator, Unit maintenance indicator, Unit disposal indicator, Unit recycling indicator, Unit reuse indicator, Unit upgrade indicator, Unit replacement indicator, Unit repair indicator, Unit maintenance indicator, Unit disposal indicator, Unit recycling indicator, Unit reuse indicator, Unit upgrade indicator, Unit replacement indicator.

American Sign Language

Sparklines

glucose 128
respiration 16
temperature 99.2
WBC 8,800

5+ years

238 downloads
5177 page views
Project rank: 84

644,368 Vanguard 500 Index
62,510 Fidelity Flagship
50,129 Amer A-Invest Co Am
47,355 Amer A-W Mutual Inv
40,500 PNC Inst Tot Return
37,441 Amer A-Grow Fd Amer
31,161 Fidelity Contrafund
28,296 Fidelity Growth & Inc
25,314 Amer A-Inc Fnd Amer
24,155 Vanguard Instl Index

Number of symptoms each year, 1749-1924

NetOps Symbology

DEVICE USER SOFTWARE SUPER USER

TRUSTED UNTRUSTED THREAT INSIDER

SCAN/PROBE RECONNAISSANCE MALICIOUS

MISCONFIGURATION VULNERABILITY

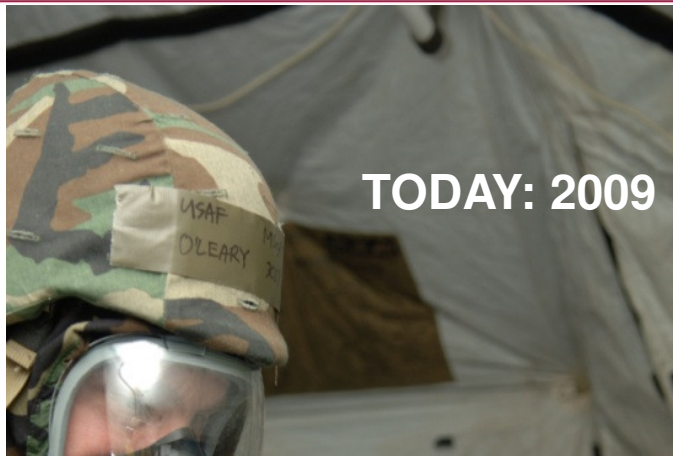
Blissymbols

BOOK MEDICAL KNOWLEDGE PLANT MONEY HOUSE

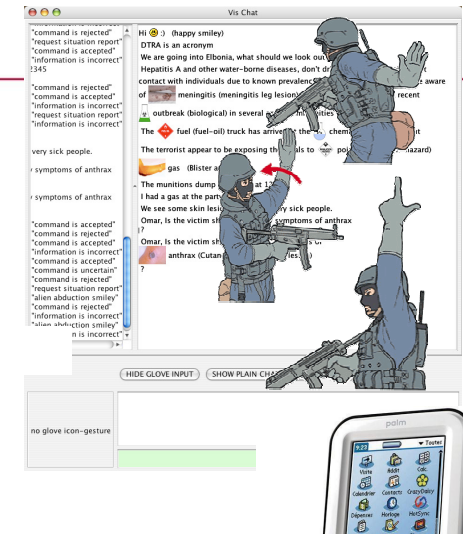
library greenhouse bank hospital, clinic

school

Transdisciplinary Sciences is Difficult—But Facilitates Revolutionary Concepts and Advances



Cognitive Sciences
Emergent Information Sciences
Mathematics
Computational Linguistics
Computer Science



Hand Relax-Neutral



Robot in Hold-on state

ERROR: stackunderflow
OFFENDING COMMAND: ~
STACK: